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| EXAMINER | |
|---|---|
| BAYOU, AMENE SETEGNE | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3746 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/562,873 | LUTZ, JOSEF | |
| | Examiner | Art Unit | |
| | AMENE S. BAYOU | 3746 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/29/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 24 and thus its dependent claims 25,26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. In re claim 24 it recites "during which deformation on the diaphragm has an inner mechanical tension". The phrase causes confusion and it is not clear from the statement whether "the diaphragm" has "inner tension". Based on the disclosure we understood the phrase to mean " , the diaphragm has an inner mechanical tension". Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4,7-18,22-23,24 (as best understood),25-26 are rejected under 35 U.S.C. 102(b) as being unpatentable over Biegelsen et al. (US patent number 6089534).

6. In re claim 1, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- A device (10) ,in figure 1,6 and 7,for generating a medium stream, which device (10) comprises a chamber, which chamber comprises chamber walls (18,20) lying opposite one another and at least one medium opening (16) for the medium stream and is equipped with a diaphragm means (30), which diaphragm means (30) is provided and constructed for generating the medium stream and which diaphragm means (30), in an inactive operating state of the device (10), is arranged substantially untensioned (column 3,lines 16-19) in the chamber between the chamber walls (18,20) and associated with which diaphragm means (30) are drive means (43-48,83-88), responsive to electrical drive signals, for driving the diaphragm means (30) to deform the same, the drive means (voltage source denoted as "V" connected to each electrodes) being arranged to impose a deformation (column 4,lines 10-18) on the diaphragm means (30) in an active operating state of the device (10), during which deformation the diaphragm means (30) have an inner mechanical tension.

7. In re claim 2, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The drive means ('V") comprise electrodes (43-48,83-88) arranged on the chamber walls (18,20) lying opposite one another, in figure 6.

8. In re claim 3, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means (30) comprises a metal foil, in column 3, lines 48-51.

9. In re claim 4, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means (30) comprises a foil made of a dielectric material, in column 3, lines 48-51.

10. In re claim 7, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means (30) comprises two end regions (32,34) provided a distance apart from one another, which end regions (32,34) are fixed in the chamber ,in figures 6 and 7.

11. In re claim 8, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The drive means (denoted as 'V' ,in figures 6 and 7) contain an electromechanical drive element (controller to apply voltage ,in column 4,line 47-48), and the diaphragm means (30) has an end portion (32) that is connected to the electromechanical drive element (64 or 70) in figures 6 and 7.

12. In re claim 9, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The chamber (between walls 18 and 20) is of substantially cuboidal construction and comprises two end walls (18,20) lying opposite one another, in figure 1.

13. In re claim 10, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The chamber comprises at least two medium openings (14,16) provided spaced apart from one another, in figure 1.

14. In re claim 11, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means (30) has at least substantially constant thickness, in figure 1 and column 3,lines 53-57.

15. In re claim 12, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means (30) is fixed with two opposing end regions (32,34) to the end walls of the essentially cuboidal chamber in figures 6 and 7.

16. In re claim 13, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The drive means ("V") are designed to impose a deformation having at least a pre-determinable frequency, in figure 6 and column 5 lines 11-21 .

17. In re claim 14, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The drive means ("V") are designed to impose a cyclic deformation in the form of a traveling wave on the diaphragm means (30), in figure 6 and column 5 lines 11-21

18. In re claim 15, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means (30) is fixed with one end (32) region close to one end of the cuboidal chamber to the one chamber wall (18) of the mutually opposed chamber walls (18,20) and with an opposite end region (34) close to the opposite end of the chamber to the other chamber wall (20) of the mutually opposed chamber walls in figures 1 and 6.

19. In re claim 16, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means (30) comprises a transition portion (shown by dotted line) extending in operation substantially at right angles to the chamber walls (18,20) lying opposite one another, in figure 5.

20. In re claim 17, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- Medium openings (14,16)are provided at both ends of the chamber ,in figure 1.

21. In re claim 18, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The medium stream is a stream of a gaseous medium, in column 2 lines 61-63.

22. In re claim 22, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means(102) and/or the chamber walls have an insulating layer (97) , in figure 8 and column 6, lines 1-4.

23. In re claim 23, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The diaphragm means have a structured (different layers) surface ,in column 3,lines 49-51. In addition since every micro/macro surface have a certain degree of roughness Biegelsen et al. '534 also inherently disclose a structured surface.

24. In re claim 23, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- A device (10) ,in figure 1,6 and 7,for generating a medium stream, the device (10) comprising a chamber having chamber walls (18,20) lying opposite one another and at least one medium opening (16) for passing a medium stream, a diaphragm (30) and extending laterally between the opposing chamber walls (18,20) the diaphragm (30) being substantially untensioned in the chamber between the chamber walls (18,20) in an active state (column 3,lines 16-19), electrodes (43-48,53-58) on each of the opposing chamber walls (18,20) and responsive to electrical drive signals (denoted as "V") by imposing deformation (column 4,lines 10-18) on the diaphragm in an active operating state of the device ,during which deformation on the diaphragm (30) has an inner mechanical tension, the deformation causing fluid flow in the chamber in a direction that is about parallel to the chamber walls (18,20).

25. In re claim 24, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The electrodes (43-48,53-58) are separate from and not in contact with the diaphragm (30),in figure 6.

26. In re claim 25, Biegelsen et al. '534 disclose a micromechanical device for generating medium stream including:

- The electrodes (43-48,53-58) are arranged on the chamber walls (18,20)and electrically coupled to apply an electric field signal (Attached to voltage sources 'V") to cyclically draw (column 5,lines 6-9 and lines 18-23) the diaphragm (30) towards a first chamber wall (18 or 20) and to repel the diaphragm from another chamber wall (18 or 20),in figure 6 and column 4,lines 57-65.

***Claim Rejections - 35 USC § 103***

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

28. Claims 5 and 6 are rejected under 35 U.S.C 103(a) as being unpatentable over Biegelsen et al. '534 in view of Bryant et al. (US patent number 6856073).

29. In re claim 5, Biegelsen et al. '534 disclose the claimed invention except:

- The diaphragm means consists at least partly of piezoelectric material

However ,Bryant et al '073 B2 disclose fluid movement control system including:

- The diaphragm means (10) consists at least partly of piezoelectric material, in column 5 ,lines 27 and 28.

30. It would have been obvious to one skilled in the art at the time the invention was made to modify the device of Biegelsen et al. '534 by selecting piezoelectric material for

the diaphragm as taught by Bryant et al '073 B2 because it is light weight, and also excellent to receive and transmit response when induced by voltage.

31. In re claim 6, Biegelsen et al. '534 in view of Bryant et al.'073 as applied to claim 5 disclose the claimed invention:

Bryant et al.'073 disclose:

- The diaphragm means (10) comprises an electrode, in column 8 lines 12 and 13.

32. Claims 19 -21 are rejected under 35 U.S.C 103(a) as being unpatentable over Biegelsen et al. '534.

33. In re claim 19 and 20 , Bryant et al '073 B2 disclose the a device for the generation of sound or as a pump by means of the medium stream generated because It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. ***Ex parte Masham, 2 USPQ2d 1647 (1987).***

34. In re claim 21, Bryant et al '073 B2 disclose the claimed invention except mentioning that a plurality of chambers are provided in the device. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make plurality of chambers instead of one, if needed, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. **St. *Regis Paper Co. v. Bemis Co., 193 USPQ 8.***

***Response to Arguments***

35. Applicant's arguments, see pages 1-3, filed on June 6 2008, with respect to the rejection(s) of claim(s) 1-23 under 35 U.S.C 112, 35 U.S.C 102(b) and 35 U.S.C 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Bryant et al '073 B2 . Bryant et al '073 B2 disclose a device for generating a medium stream containing flexible diaphragm installed in parallel walls, which walls form a chamber for moving the stream.

***Conclusion***

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amene S. Bayou whose telephone number is 571-270-3214. The examiner can normally be reached on Monday-Thursday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746